AMENDMENTS TO THE CLAIMS

1. (Currently Amended) ~~An~~ A filter device configured for being implanted in a blood vessel and capable of carrying out in-vivo plasma separation therein comprising one or more elongated hollow tubes having a plurality of elongated hollow microporous fibers attached thereto, said fibers comprising an inner wall surface defining an interior fiber lumen, an outer wall surface, and a microporous fiber wall therebetween said fiber wall having an asymmetrical morphology between said outer wall surface and said inner wall surface and having a higher mass density adjacent to the outer wall surface and a lower mass density adjacent to the inner wall surface, the higher mass density comprising a smaller average nominal pore size than the average nominal pore size in the lower mass density, said fiber wall having one or more continuous, cohesive, elongated filaments embedded in said fiber and extending lengthwise of said elongated fiber along substantially the full length thereof.

2. (Original) A fiber of Claim 1 wherein said one or more filaments extend along said fiber generally coaxially with said fiber lumen.

3. (Original) A fiber of Claim 1 or 2 wherein said one or more filaments extend along said fiber wall substantially uniformly between said inner wall surface and said outer wall surface.

4. (Original) A fiber of Claim 3 wherein said one or more filaments extend along said fiber wall substantially equidistant between said inner wall surface and said outer wall surface.

5. (Original) A fiber of Claim 3 wherein at least one of said one or more filaments comprises a single thread or strand extending substantially the full length of said fiber.

6. (Original) A fiber of Claim 3 wherein said fiber comprises a microporous fiber wall having a pore size capable of separating plasma and/or plasma components from whole blood.

7. (Original) A fiber of Claim 1 wherein the one or more filaments have a substantially uniform tensile strength along the length thereof.

8. (Original) A fiber of Claim 1 wherein said one or more filaments occupy less than about 15% of the fiber wall cross-sectional area of said fiber.

9. (Original) A fiber of Claim 1 wherein said one or more filaments occupy less than about 10% of the fiber wall cross-sectional area of said fiber.

10. (Original) A fiber of Claim 1 wherein each of said one or more filaments has a cross-sectional area occupying between about 0.1% and about 3% of the cross-sectional area of said fiber.

11. (Original) A fiber of Claim 1 wherein each of said one or more filaments has a cross-sectional area occupying between about 0.2 and about 2% of the cross-sectional area of said fiber.

12. (Currently Amended) A fiber of Claim 1 comprising a plurality of said filaments ~~and wherein each filament has a cross-sectional area~~ occupying between about ~~0.2~~ 0.5% and about ~~2~~ 5% of the cross-sectional area of said fiber.

13. (Original) A fiber of Claim 1, 7or 10 herein said one or more filaments comprise fiberglass, polypropylene, silk, polysulfone, polyethersulfone, polyamide or polyimide.

14. (Original) A fiber of Claim 1, 7or 10 herein said one or more filaments have a tensile strength of at least about 5,000 psi.

15. (Original) A fiber of Claim 1, 7or 10 herein said one or more filaments have a tensile strength of at least about 10,000 psi.

16. (Original) A fiber of Claim 12 comprising two filaments.

17. (Original) A fiber of Claim 13 wherein said fiber comprises a microporous fiber wall having a pore size capable of separating plasma and/or plasma components from whole blood.

18. (Original) A fiber of Claim 17 wherein said two filaments extend along said fiber substantially opposite one another and substantially coaxially with said fiber lumen.

19. (Original) A fiber of Claim 12 comprising three filaments.

20. (Original) A fiber of Claim 19 wherein said three filaments extend along said fiber substantially equidistant from one another.

21. (Original) A fiber of Claim 13 wherein said one or more filaments have a tensile strength of at least about 5,000 psi.

22. (Original) A fiber of Claim 17 or 19 wherein each of said filaments extend along said fiber wall at substantially the same distance between said inner wall surface and said outer wall surface.

23. (Original) A fiber of Claim 17 or 19 wherein each of said filaments extend along said fiber wall substantially equidistant between said inner wall surface and said outer wall surface.

24. (Original) A fiber of Claim 1 wherein said fiber comprises a polysulfone or polyethersulfone.

25. (Original) A fiber of Claim 24 wherein said fiber comprises a blend of polyethersulfone and poly(ethylene oxide).

26. (Original) A fiber of Claim 24 or 25 wherein said one or more filaments comprise fiberglass, polypropylene, silk or nylon.

27. (Original) A fiber of Claim 26 wherein said one or more filaments have a tensile strength of at least about 5,000 psi.

28. (Original) A fiber of Claim 26 wherein said one or more filaments have a tensile strength of at least about 10,000 psi.

29. (Original) A fiber of Claim 26 wherein each of said one or more filaments has a cross-sectional area occupying between about 0.1% and about 5% of the cross-sectional area of said fiber.

30. (Original) A fiber of Claim 1 having a minimum mean pore diameter of between about 0.1 μm and about 1 μm and a maximum mean pore diameter of between about 1 μm and about 60 μm.

31. (Original) A fiber of Claim 1 having a minimum mean pore diameter of between about 0.005 μm and about 0.05 μm and a maximum mean pore diameter of between about 1 μm and about 60 μm.

32. (Currently Amended) A filter device for being implanted in a blood vessel for carrying out *in-vivo* plasma separation comprising:

~~one or more~~ a plurality of elongated hollow tubes and a plurality of elongated fibers each fiber having a microporous fiber wall with an outer wall surface and an inner wall surface defining an interior lumen extending along the length thereof, each fiber

having a first end and a second end secured to one or more of said elongated hollow tubes, wherein the interior lumen of each of the fibers communicates with the interior of the said one or more hollow tubes, said fibers including one or more continuous filaments embedded in the microporous fiber wall between the first and second ends of the fiber.

33. (Original) A filter device of Claim 32 wherein the fiber wall morphology of each of the elongated microporous fibers is asymmetrical between the inner wall surface and the outer wall surface, said fiber wall having a higher mass density zone adjacent to the outer wall surface and a lower mass density zone adjacent to the inner wall surface, said higher mass density zone having a smaller average nominal pore size than the average nominal pore size in the lower mass density zone.

34. (Original) A filter device of Claim 33 comprising one or more first and one or more second elongated hollow tubes extending substantially parallel along the length thereof, and wherein a first end of each of said elongated microporous fibers is secured to a first hollow tube and a second end of each of said fibers is secured to a second hollow tube whereby the interior fiber lumen of each fiber communicates with the interior of a first and a second hollow tube.

35. (Original) A filter device of Claim 34 comprising two of said elongated hollow tubes, each of said tubes having a plurality of holes spaced apart along a substantial portion of the length thereof, each hole receiving a first or a second end of an elongated microporous fiber.

36. (Original) A filter device of Claim 33 wherein said one or more filaments extend along said fiber wall substantially uniformly between said inner wall surface and said outer wall surface.

37. (Original) A filter device of Claim 33 wherein said one or more filaments extend along said fiber wall substantially equidistant between said inner wall surface and said outer wall surface.

38. (Original) A filter device of Claim 32 wherein the one or more filaments have a substantially uniform tensile strength along the length thereof.

39. (Original) A fiber of Claim 32 wherein said one or more filaments occupy less than about 15% of the fiber wall cross-sectional area of said fiber.

40. (Original) A fiber of Claim 32 wherein said one or more filaments occupy less than about 10% of the fiber wall cross-sectional area of said fiber.

41. (Currently Amended) A filter device of Claim 32 wherein each of said one or more filaments has a cross-sectional area occupying between about ~~0.2~~ 01% and about 2% of the cross-sectional area of said fiber.

42. (Original) A fiber of Claim 32 wherein each of said one or more filaments has a cross-sectional area occupying between about 0.2 and about 2% of the cross-sectional area of said fiber.

43. (Original) A filter device of Claim 32 comprising a plurality of said filaments and wherein each filament has a cross-sectional area occupying between about 0.2% and about 2% of the cross-sectional area of said fiber.

44. (Original) A filter device of Claim 32 wherein said one or more filaments have a tensile strength of at least about 5,000 psi.

45. (Original) A filter device of Claim 32 wherein said one or more filaments comprise fiberglass, polypropylene, silk, polysulfone, polyethersulfone, polyimide, polyamide or aramid.

46. (Original) A filter device of Claim 32 comprising two of said filaments.

47. (Original) A filter device of Claim 46 wherein said one or more filaments comprise fiberglass, polypropylene, silk, polysulfone, polyethersulfone, polyimide, polyamide or aramid.

48. (Original) A filter device of Claim 47 wherein each of said one or more filaments has a cross-sectional area occupying between about 0.2% and about 2% of the cross-sectional area of said fiber.

49. (Currently Amended) A filter device of Claim ~~46~~ 47 comprising a plurality of said filaments ~~and wherein each filament has a cross-sectional area~~ occupying between about ~~0.2~~ 0.5% and about ~~2~~ 5% of the cross-sectional area of said fiber.

50. (Original) A filter device of Claim 33 wherein the fiber wall structure comprises a continuous change in mass density from the outer wall surface to the inner wall surface.

51. (Original) A filter device of Claim 50 wherein the fiber wall structure comprises a continuum of voids bounded by solid frames.

52. (Original) A filter device of Claim 33 wherein said membrane fiber wall has two mass density zones and wherein each of said zones is characterized by a different average nominal pore size.

53. (Original) A filter device of Claim 33 wherein said membrane fiber wall has three mass density zones and wherein each of said zones is characterized by a different average nominal pore size.

54. (Original) A filter device of Claim 33 wherein said membrane fiber wall has four or more mass density zones and wherein each of said zones is characterized by a different average nominal pore size.

55. (Original) A filter device of Claim 52, 53, or 54 wherein said lower mass density zone is characterized by a nominal average pore diameter of between about 1 μm and about 60 μm.

56. (Original) A filter device of Claim 52, 53, or 54 wherein said higher mass density zone is characterized by a nominal average pore diameter of between about 0.3 μm and about 1 μm.

57. (Original) A filter device of Claim 55 wherein said higher mass density zone is characterized by a nominal average pore diameter of between about 0.3 μm and about 1 μm.

58. (Original) A filter device of Claim 52 wherein the nominal average pore diameter in said lower mass density zone is between about 2 μm and about 6 μm.

59. (Original) A filter device of Claim 52 wherein the nominal average pore diameter in said higher mass density zone is between about 0.4 μm and about 0.8 μm.

60. (Original) A filter device of Claim 58 wherein the nominal average pore diameter in said higher mass density zone is between about 0.4 μm and about 0.8 μm.

61. (Original) A filter device of Claim 60 having one or more intermediate mass density zones having a nominal average pore diameter of between about 0.8 μm and about 2 μm.

62. (Original) A filter device of Claim 61 having two intermediate mass density zones, a first intermediate zone having a nominal average pore diameter of between about 0.8 μm and about 1.2 μm and a second intermediate zone having a nominal average pore diameter of between about 1.2 μm and about 2 μm.

63. (Original) A filter device of Claim 49 wherein said higher mass density zone is characterized by a nominal average pore diameter of between about 0.005 μm and about 0.05 μm.

64. (Currently Amended) A method of improving the structural integrity of an elongated hollow microporous fiber produced by extruding a fluid polymer composition from polymer extrusion machine spinnerette and having an inner wall surface defining an inner fiber lumen, an outer wall surface and a fiber wall therebetween wherein said fiber comprises an asymmetrical microporous fiber wall having a higher mass density zone adjacent to the outer wall surface and a lower mass density zone adjacent to the inner wall surface, said higher mass density zone formed by an outer fluid polymer composition and said lower mass density zone formed by an inner fluid polymer composition, the method comprising embedding one or more elongated continuous, cohesive filaments in said fiber wall along substantially the full length of said fiber wherein said one or more filaments are introduced into the spinnerette and directed into the fluid polymer composition before the polymer is extruded from said spinnerette.

65. (Original) A method of Claim 64 wherein said one or more filaments are embedded in said fiber wall substantially uniformly between said inner wall surface and said outer wall surface.

66. (Original) A method of Claim 65 comprising embedding said filament in said fiber wall generally equidistant between said inner wall surface and said outer wall surface.

67. (Cancelled)

68. (Currently Amended) A method of Claim ~~67~~ 64 ~~wherein said fiber comprises an asymmetrical microporous fiber wall having a higher mass density zone adjacent to the outer wall surface and a lower mass density zone adjacent to the inner wall surface, said higher mass density zone formed by an outer fluid polymer composition and said lower mass density zone formed by an inner fluid polymer composition~~ wherein said outer fluid polymer and said inner fluid polymer are introduced into said spinnerette at first and second locations, respectively, and wherein said filament is introduced into said spinnerette at a third location.

69. (Original) A method of Claim 68 wherein said filament is introduced into said spinnerette with said outer fluid polymer composition.

70. (Original) A method of Claim 69 wherein said filament and said inner fluid polymer composition are extended from said spinnerette at substantially the same rate.

71. (Original) A method of Claim 68, 69 or 70 including guiding said filament in said fiber wall following extrusion of said polymer compositions from said spinnerette.

72. (New) Apparatus of Claim 1 wherein the fiber wall structure comprises a continuous change in mass density from said outer wall surface to said inner wall surface and comprises a continuum of voids bounded by solid frames, said fiber wall having an asymmetrical pore size and asymmetrical mass density between said inner wall surface and the outer wall surface.

73. (New) Apparatus of Claim 1 wherein said fiber wall comprises a plurality of mass density zones and wherein each of said zone is characterized by a different average nominal pore size.